

## **REMARKS**

This Amendment is in response to the Examiner's comments set forth in the Office Action of August 17, 2009. Claim 1 has been amended. Claims 1-14, 16-26, and 28-39 are currently pending in this application.

Reconsideration of this application is respectfully requested in light of the comments and amendments herein.

### **The Office Action**

The numbering of the claims is objected to.

Claims 1-14, 16-19, 28-37, and 40 are rejected under 35 U. S. C. §103(a) in light of Yokota et al. (U.S. Patent No. 6,497,926) in view of Clarke et al. (U.S. Patent No. 6,099,913), Nakamura et al (U.S. Patent No. 4,230,743), and Ruschak et al. (U.S. Patent No. 5,885,660).

Claims 20-26 and 39 are rejected under 35 U. S. C. §103(a) in light of Yokota et al. (U.S. Patent No. 6,497,926) in view of Clarke et al. (U.S. Patent No. 6,099,913) and Nakamura (U.S. Patent No. 4,230,743) as applied to claims 1, 15 and 25 above, and further is in view of Iwasaki et al. (U.S. Patent No. 6,800,558).

Claim 27 is rejected under 35 U. S. C. §103(a) as being unpatentable over Yokota et al. (U.S. 6,497,926) in view of Clarke et al. (U.S. Patent No. 6,099,913) as applied to claim 1, in further view of Ruschak (U.S. Patent No. 5,885,660).

### **Claim Objection**

The numbering of the claims is objected to as not being in accordance with 37 C.F.R. 1.126, which requires the original numbering of the claims to be preserved throughout the prosecution. Specifically, the Examiner submits that claim 38 is missing in the amended list. Applicant submits that the claims have been amended to reflect proper numbering.

### **Obviousness Rejections**

The Office Action states that claims 1-14, 16-19, 28-37, and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yokota, in view of Clarke, Nakamura and Ruschak. In particular, the Office Action asserts that Yokota discloses the claimed method for producing a thermal paper or recording material that reads on the steps comprising a substrate, pigment coat

or dispersion agent, a thermal reaction layer in the form of heat sensitive recording layer, and optionally, one or more intermediate coats or top coats as protective layers via the curtain-coating method with an aqueous suspension containing pigments, binding agents, and additives, color pigments or formers, aqueous application suspension containing calcined kaolin having a solid matter contents of approximately 100 parts by means of the curtain-coating method. The Office Action recognizes that that Yokota is silent about the operating speed of the curtain coating method; however, cites that Clark discloses the curtain coating method at web speeds and drop height of about 10-30cm. Additionally, although Yokota fails to disclose the particle size, application weight, and nozzle throughputs of calcined kaolin, Nakamura discloses the particle size in the range of about 0.1 $\mu$ m to about 100 $\mu$ m, weight ratios in the range of 10-70 wt% and application weight 5-8 g/m<sup>2</sup> of the aqueous application suspension containing the kaolin and operating speed of about 1000 m/min or higher and there is no limit in theory in curtain coating method and nozzle or slit throughputs in the range of 0.66-1.0 cc/cm/sec or more. Applicants respectfully traverse, however, and submit that the subject claims patentably define over any fair reading or interpretation of the cited references.

More specifically, Applicant submits that the Examiner's proposed modification of Yokota in view of Namakura is improper. Nakamura is directed to a process for producing a pressure-sensitive copying paper that comprises a single-layer, free-fall, vertical curtain of a coating solution containing microcapsules. A pressure-sensitive copying paper is fundamentally different from a thermal paper, and the method for producing these two different kinds of papers differ, particularly in the layers that are coated for forming the paper. The Office Action states that it would have been obvious to employ Nakamura's particle size and application weight in the curtain coating method employed by Yokota because Nakamura illustrates that the adjustment of particle size and application weight are crucial for producing a pressure sensitive copying paper of high quality that eliminates the disadvantages of conventional techniques. However, as with the presently claimed invention, Yokota is directed to thermal paper, not pressure sensitive paper and the two are not interchangeable, nor do they have similar properties. Accordingly, Applicant submits that a person of ordinary skill in the art would not combine the teachings of Yokota with that of Nakamura, since the subject matter Nakamura is directed to non-analogous art.

The Federal Circuit adopted a two-step test for determining whether particular references

are within the appropriate scope of analogous art. *In re Deminski*, 796 F.2d 436, 230 USPQ 313 (Fed. Cir. 1986). First, it must be determined whether the reference is within the field of the inventor's endeavor. Second, assuming the reference is outside that field, it must be determined whether the reference is reasonably pertinent to the particular problem with which the inventor was involved. *Id.* Regarding the first step, as stated above, Nakamura is directed to producing pressure sensitive paper, not thermal paper, which is the focus of both the subject application and Yokota. With regard to the second step, Applicant submits that Nakamura is directed to overcoming the problems found in the protective agent from traditional coating methods of pressure-sensitive copying paper. In contrast, the subject application is directed to using the curtain coating method for producing a thermal paper that overcomes the problems found in the quality of the cover coating and top coat under traditional coating methods. Accordingly, Applicant submits that Nakamura clearly fails under either step, and is therefore non-analogous and considered irrelevant for purposes of evaluating obviousness.

Additionally, Applicant submits that even if a person of ordinary skill in the art would have combined Yokota with Nakamura, which Applicant does not concede is appropriate, modified Yokota in view of Nakamura does not disclose the subject matter of current claim 1. Particularly, Applicant submits that Nakamura does not disclose the use of calcined kaolin in the intermediate pigment layer. Although Nakamura teaches the use of kaolin at speeds of about 1,000 m/min, there is no mention of using calcined kaolin at such speeds. As stated in paragraph [008] of the subject application, the technical and commercial success realized by the presently claimed invention is surprising due to the fact that calcined kaolin is known to create rheological problems with higher carrier substrate velocities. Accordingly, the disclosed particle size, application weight, and nozzle throughputs disclosed in Nakamura are therefore not disclosed for calcinated kaolin. Any fair reading or interpretation of Nakamura realizes that the values are only for non-calcinated kaolin, where the mentioned rheological problems of the calcinated kaolin do not arise. Nakamura fails to give any suggestion or slight motivation concerning the use of calcinated kaolin.

Furthermore, with reference to operating speed, the Office Action acknowledges that Yokota is silent as to operating speed of the curtain coating method; however, submits that Clarke discloses the curtain coating method at web speeds (1000 cm/s or about 600 m/min) and drop height of about 10-30 cm. The Examiner points to Figure 2(c), which illustrates a coating

map displaying a roughness of 0.7  $\mu\text{m}$  and viscosity of 22 mPas, and Figure 2(d) illustrates a roughness of 4.4  $\mu\text{m}$ , and a viscosity of 170 mPas. Clarke demonstrates an increased web velocity up to about 775 cm/s with a maximum viscosity of 170 mPas, when a high level of roughness is present. However, on smoother surfaces (.7 $\mu\text{m}$ ) Clarke teaches that increasing viscosity leads to **lower** coating speeds, as is demonstrated in Figure 2(c), wherein the web speed is at a maximum at about 400 cm/s. In contrast, the subject invention and Yokota alike disclose viscosities of **at least** 150 mPas (100 mPas in Yokota) and demonstrate only nominal roughness, found in ordinary paper substrates. Therefore, not only do the subject application and Yokota not require the significant roughness levels found in Clarke, but the upper-end of possible viscosities in Clarke are intended only as an absolute minimum. Applicant maintains that the Examiner appears to disregard the additional factors in Clarke that impact the ability to increase the coating speed, and simply asserts that it would have been obvious to select the claimed operating speed since Clarke shows that it is possible, without taking into consideration the variables considered most pertinent to making the increased speeds happen. Rejections based on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. (See MPEP §2143 citing *KSR v. Teleflex, Inc.*, 550 U.S. 398 (2007)). According to *KSR*, the key to supporting any rejection under 35 U.S.C. 103 is the clear articulation of the reasons why the claimed invention would have been obvious. Applicant respectfully submits that although the conflicting variables in Clarke have been previously pointed out, the Examiner has not provided any reasoning as to why the combination of Yokota and Clarke would have been obvious regardless, making the rejection improper.

The Office Action further states that claims 20-26 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yokota, in view of Clarke, and Nakamura, as applied to claims 1, 15, and 20, in further view of Iwasaki. Applicant submits, however, that claims 20-26 and 39 depend from and include all the limitations of independent claim 1. Iwasaki does not make up for the aforementioned deficiencies of Yokota, Clarke and Nakamura described in more detail above. As such, the rejection should be withdrawn.

For at least the aforementioned reasons, Applicant respectfully asserts that the subject claims patentably distinguish over the cited references. Accordingly, the rejection of independent claim 1 (along with claims 2-14, 16-26, and 28-39 that respectfully depend

therefrom) should be withdrawn.


### CONCLUSION

For the reasons detailed above, it is respectfully submitted all claims remaining in the application (Claims 1-14, 16-26, and 28-39) are now in condition for allowance.

Respectfully submitted,

Fay Sharpe LLP

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Date

  
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